

Claims with changes shown:

Claims

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1. A method of testing a technology based software component of a computerized application under test that allows simultaneous users over a computer network, the method comprising the steps of:
 - a) providing test code that exercises said software component of the application under test;
 - b) synchronizing and executing a plurality of instances of the test code and recording performance data on said software component of the application under test;
 - c) repeating step b) multiple times, with a different number of instances of the test code;
 - d) analyzing the recorded performance data to indicate a performance characteristic of said software component of the application under test in response to load.
 2. The method of claim 1 wherein the step of providing test code includes generating test code automatically.
 3. The method of claim 1 wherein the application under test is an object oriented language and the step of providing test code comprises providing test code to exercise one software component of the application.
 4. The method of claim 1 wherein the step of synchronizing comprises starting each instance of the test code at the same time.
 5. The method of claim 1 wherein the step of synchronizing and executing comprises executing a portion of the plurality of instances of test code on a first computer and a portion of the plurality of instance of test code on a second computer connected to the

network.

6. The method of claim 1 wherein the step of analyzing includes preparing a graphical display having as an independent variable the number of instances of the test code and the dependent variable is the performance data.

7. The method of claim 1 wherein the step of analyzing includes preparing a graphical display having as an independent variable the number of instances of the test code and the dependent variable is derived from the performance data.

8. The method of claim 1 wherein the application under test is resident on a first server within the network and the application has a remote interface and the test code is resident on at least a second computer within the network and exercises the software component of the application under test using the remote interface of the application under test.

9. The method of claim 1 wherein the step of analyzing includes displaying the analyzed data to a human user using a graphical user interface.

10. A method of testing a technology based software component of a computerized application under test that allows simultaneous users over a computer network, the method comprising the steps of:

- a) specifying test conditions through a user interface to a test system;
- b) initiating through a user interface to the test system the gathering of test data on the performance of at least one software component of the application under test at a plurality of load conditions;
- c) specifying through a user interface to the test system the output format of the test data; and
- d) displaying in the specified format the response of said at least one software component of the application under test to load.

Sub C 11. The method of claim 10 wherein the specified format is a graphical format indicating response time as a function of load conditions.

12. The method of claim 11 wherein the specified graphical format is a Hi-Lo plot.

13. The method of claim 11 wherein the step of gathering data under a plurality of load conditions comprises initiating the execution of a plurality of copies of a test program, with the number of copies executing simultaneously relates to the load condition.

14. The method of claim 13 wherein the step of specifying an output format includes specifying a method by which response is measured.

15. The method of claim 13 wherein the step of gathering test data includes recording the execution time between selected points in the test program for each simultaneously executing copy of the test program and analyzing the recorded execution times for all copies of the test program.

16. The method of claim 15 wherein the step of analyzing comprises determining the average and maximum execution times for each of the load conditions.

17. The method of claim 10 wherein:

- a) the computerized application under test comprises software resident on a server controlling access to a computerized database;
- b) the server is connected to a network and the application under test is simultaneously accessed by a plurality of clients over the network; and
- c) the test system is resident on at least a second server connected to the network.

18. A method of testing a technology based software component of a computerized application under test that allows simultaneous users over a computer network, the

application under test having a plurality of software components, the method comprising the steps of:

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- a) providing test code to exercise a selected software component;
 - b) creating a first plurality of copies of the test code;
 - c) simultaneously executing the first plurality of copies of test code while recording times between events in each of the first plurality of copies of test code;
 - d) creating a second plurality of copies of test code,
 - e) simultaneously executing the second plurality of copies of test code while recording times between events in each of the second plurality of copies of test code;
 - f) repeating a predetermined number of times the steps of creating plural copies of the test code and simultaneously executing the plural copies while recording event times; and
 - g) analyzing the recorded times to present information on the performance of the software component of the application under test as a function of load.
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20. (Amended) The method of claim 18 wherein each software component has a plurality of functions therein and the test code exercises functions of the software components.

21. The method of claim 20 wherein the events at which times are recorded includes times at which commands are issued to access functions of the software components and times at which execution of the commands are completed.

22. A system for determining performance of a technology based software component of an application under test in response to load, the system comprising:

- a) coordination software;

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- b) at least one code generator, receiving as an input commands from the coordination software and having as an output client test code;
 - c) at least one test engine, receiving as an input commands from the coordination software, the test engine comprising a computer server having a plurality of threads thereon, each thread executing an instance of the client test code;
 - d) at least one data log having computerized memory, the memory holding timing data created by the instances of the client test code in the plurality of threads; and
 - e) at least one data analyzer software, operatively connected to the data log, having an output that represents performance of the software component of the application under test in response to load.
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